

**Installation Manual for VMAC
System V900097
GMC/Chevrolet 2006 - 2007 Classic 5.3L - 6.0L
System V900107
GMC/Chevrolet 2007-2010 GMT900 6.0L
System V900108
GMC/Chevrolet 2010 6.0L**

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VMAC – Truck Mounted Air Compressors

Toll Free: 1-888-241-2289

Fax: 1-250-740-3201

Installation Manual - Document #1930104

System V900097 - GMC/Chevrolet 2006 - 2007 Classic, 5.3L and 6.0L SIERRA and SILVERADO CK2500 and CK3500HD

System V900107 – GMC/Chevrolet 2007-2010 GMT900 6.0L

System V900108 – GMC/Chevrolet 2010 6.0L

Changes and Revisions

Version	Revision Details	Revised by/date	Approved by/date	Implemented
G	ECN 08-315	SL 24 Nov 2008	TG 25 Nov 2008	25 Nov 2008
H	ECN 09-109	SL 27 Oct 2009	TG 27 Oct 2009	2 Nov 2009
J	ECN 10-040	SH 6 May 2010	MP 25 May 2010	25 May 2010

Important Information

The information in this manual is intended for certified VMAC installers who have been trained in installation procedures and for people with mechanical trade certification who have the tools and equipment to properly and safely perform the installation. Do not attempt this installation if you do not have the appropriate mechanical training, knowledge and experience.

Follow all safety precautions for underhood mechanical work. Any grinding, bending or restructuring operations for correct fit in modified trucks must follow standard shop practices.



All hoses, tubes, and wires that are rerouted or shifted during installation must be secure so that they do not contact excessively hot areas or sharp edges. Where possible use rubber coated P-clips. Follow the routing suggestions in this manual and cover all hoses with the supplied plastic loom.

These instructions are a general guide for installing this system on standard production trucks and do not contain information for installation on non-standard trucks. This system may not fit special order models or those which have had other changes without additional modifications. If you have difficulty with the installation, contact VMAC.

The VMAC warranty form is located at the back of this manual. This warranty form must be completed and mailed or faxed to VMAC at the time of installation for any subsequent warranty claim to be considered valid.

To order parts, contact your VMAC dealer. Your dealer will ask for the VMAC serial number, part number, description and quantity. To locate your nearest dealer, call 1-888-241-2289.

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General Information

Before You Start

Read this manual before attempting installation so that you can familiarize yourself with the components and how they fit on the truck. Identify variations for different model years and different situations that are listed in the manual. Open the package, unpack the components and identify them.

All fasteners must be torqued to specifications. Use manufacturers torque values for OEM fasteners. Apply Loctite 242 or equivalent on all engine-mounted fasteners. Torque values are with Loctite applied unless otherwise specified.

STANDARD GRADE 8 NATIONAL COARSE THREAD								
Size	1/4	5/16	3/8	7/16	1/2	9/16	5/8	3/4
Foot-pounds (ft-lb)	9	18	35	55	80	110	170	280
Newton meter (N•m)	12	24	47	74	108	149	230	379

STANDARD GRADE 8 NATIONAL FINE THREAD						
Size	3/8	7/16	1/2	5/8	3/4	
Foot-pounds (ft-lb)	40	60	90	180	320	
Newton meter (N•m)	54	81	122	244	434	

METRIC CLASS 10.9					
Size	M8	M10	M12	M14	M16
Foot-pounds (ft-lb)	19	41	69	104	174
Newton meter (N•m)	25	55	93	141	236

Additional Requirements

Accessory Packs

Trucks with a 5.3L engine will require accessory pack # A700042. This accessory pack contains the correct radiator hose and instructions for the lower radiator-to-cooler connection.

Special Tools

OEM flywheel locking tool part number J42386.

Hose Information

Different frame designations will affect the tank mounting position. If you have to move the tank, the lines may be too short. Measure the hose shortfall and order a *Hose Extender Kit*.

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Part 1: Warranty and System ID

- Complete the warranty form. The VMAC warranty form is located at the back of this manual. This warranty form must be completed and mailed or faxed to VMAC at the time of installation for any subsequent warranty claim to be considered valid.

System Identification and Warnings

The System Identification Number Plate must be attached to the vehicle at the time of installation (Figure 1.1). This plate provides information that allows VMAC to assist in customer inquiries and the ordering of parts.

- Mark and drill two 7/64-inch holes, then secure the plate with self-tapping screws.

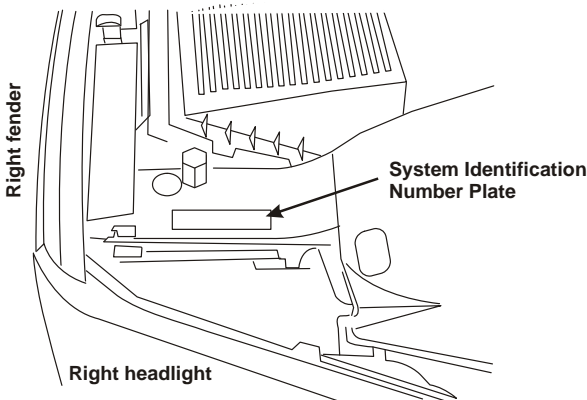


Figure 1.1

- As part of the installation process, ensure that the safety and operational instruction decal is affixed in an obvious location so that it can be seen by vehicle operators (Figure 1.2).

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This Vehicle is Equipped with a VMAC Air Compressor System

OPERATING INSTRUCTIONS

Daily Pre-Start Check

1. Check Oil Level in Tank
2. Check Drive Belt
3. Check for Leaks

Start Up Procedure

1. Ensure Compressor is OFF
2. Ensure discharge valve is CLOSED
3. Ensure air system is discharged
4. Place vehicle in Neutral or Park and engage vehicle safety features - park brake
5. Start engine and bring up to operating temperature
6. Turn ON compressor

Shutdown Procedure

1. Allow engine to idle for 1 minute
2. Turn OFF compressor
3. Wait for system to discharge for 1 minute before restarting

For Technical Support/Parts contact your VMAC Dealer
To locate your nearest dealer call 1-800-738-8622 (250-740-3200)



WARNING

Always allow system pressure to discharge before restarting

Figure 1.2

To order parts, contact your VMAC dealer. Your dealer will ask for the VMAC serial number, part number, description and quantity. To locate your nearest dealer, call 1-888-241-2289.

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Part 2: Preparing for Installation

2.1 Preparing for Installation

Preparation for installation is very important. Missing an item can cause problems in the installation or even damage to components. Check off each item as it is completed so that you do not miss any preparation steps.

2.1.1 V900097 Only

- Remove the plastic cover from the top center of the engine.
- If the truck has an automatic transmission, locate the wiring harness that runs up from the transmission and over the center of the engine intake manifold, through the trough on the driver's side of the intake (Figure 2.1). Remove the harness from the protective loom, cut the tape open and locate the light green wires in the bundle.

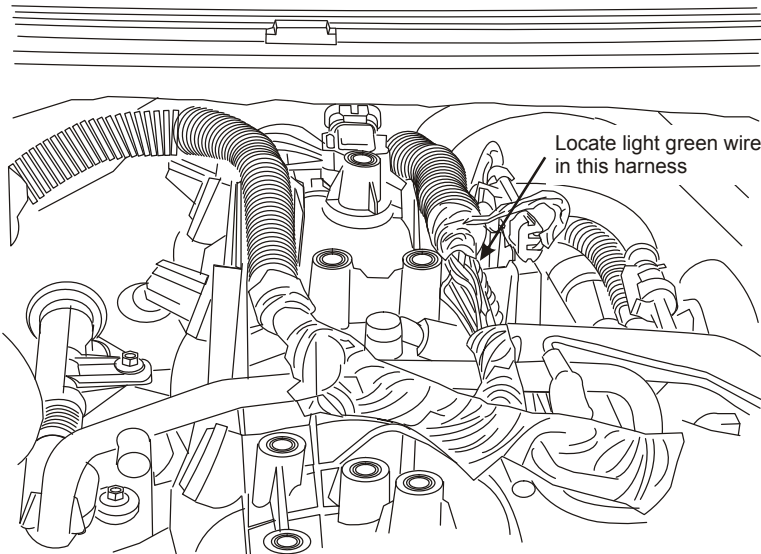


Figure 2.1

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There are two light green wires in the bundle. Only one of the wires can be used for system control.

- Turn on the ignition switch and probe the green wires.
- The correct wire will show 12 Volts in PARK and 0 Volts in all other gear selector positions.
- Turn the ignition switch off. Mark the wire for electrical connections later in the installation process.
- Disconnect the battery terminals and remove the battery.
- Remove the battery mounting plate.
- Remove the bracket holding the large, red battery cable splitter box from the alternator and power steering pump bracket. Keep the two M6 OEM cap screws.
- Unclip the large wiring harness from the driver side valve cover and the small wiring harness attached to the red battery cable splitter box bracket.
- Remove the driver side fender liner.
- Remove the Power Train Control Module (PCM) from the driver side fender (do not disconnect the wiring) and place the module out of the way.
- Bend the PCM locating tab on the fender down so that it is flush with the surface (Figure 2.2).

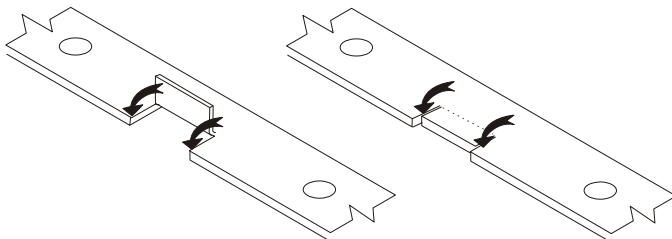


Figure 2.2

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2.1.2 V900107/V900108 Only

- Remove the plastic splash guard that holds the front passenger side inner fender and cut out the section as shown in Figure 2.3.

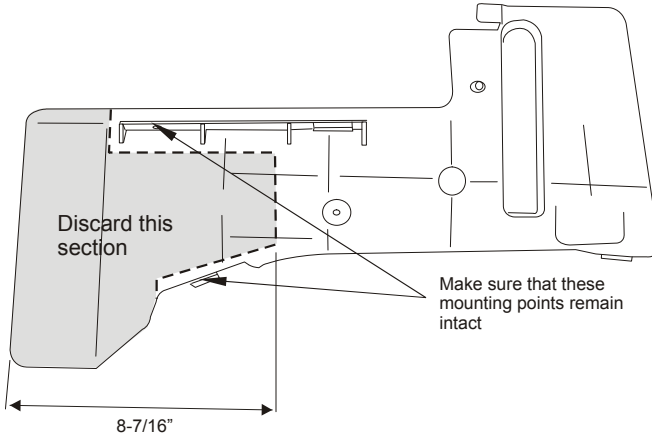


Figure 2.3

2.1.3 All Trucks

- Remove the air intake tube and resonator box.
- Drain the coolant.
- Remove the radiator end of the top OEM radiator hose, unclip it from the fan shroud and move it out of the way.
- Remove the upper radiator fan shroud.
- Remove the fan assembly and the lower radiator fan shroud.
- Remove the engine end of the lower radiator hose.
- Remove the OEM belt
- Mark the position of the power steering pump pulley in relation to the pump shaft and remove the pulley with a recommended puller.

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- Remove the power steering pump. Remove the support bracket from the back of the power steering pump and bend the tab that attaches to the side of the engine block upwards about 5 degrees to align with the compressor bracket. Install the modified bracket onto the power steering pump.
- Disconnect the wiring and remove the alternator.
- Remove the OEM aluminum alternator and power steering pump mounting bracket.
- Remove the OEM back idler from the bracket.
- Clean the inside of the OEM crankshaft pulley and remove the OEM crankshaft pulley center bolt.
- Clean the driver side of the engine. Check all threaded holes to make sure that they are clean and free from damage. Clean the frame on the passenger side of the truck between the two body mounts.
- If equipped, remove the fuel line from the plastic clips so that it can be moved out of the way when mounting the tank.
- If equipped, remove the OEM wire harness securing bracket from the top of the frame so that it can be moved out of the way when mounting the tank.
- Remove both OEM fasteners from the fender support bracket on the passenger side of the truck (Figure 2.4). On four-wheel drive trucks, remove the hex head bolt on the bottom of the frame that holds the tow hook in place. Some trucks may have a hole in the frame where the tow hook would be attached.

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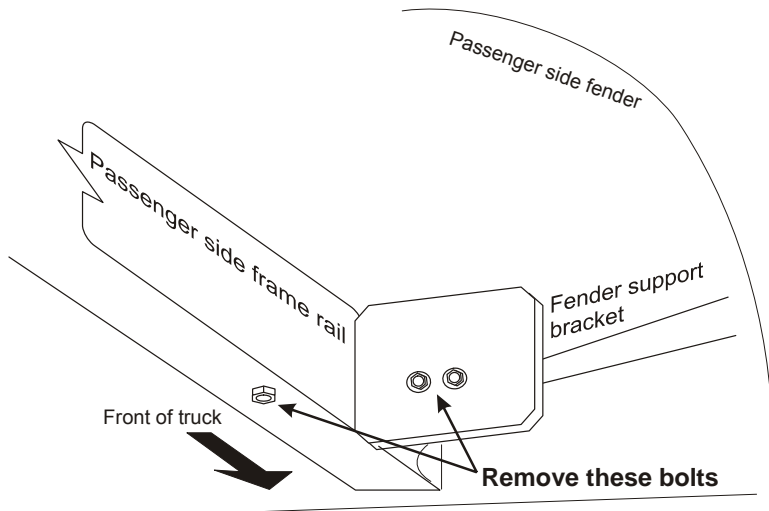


Figure 2.4

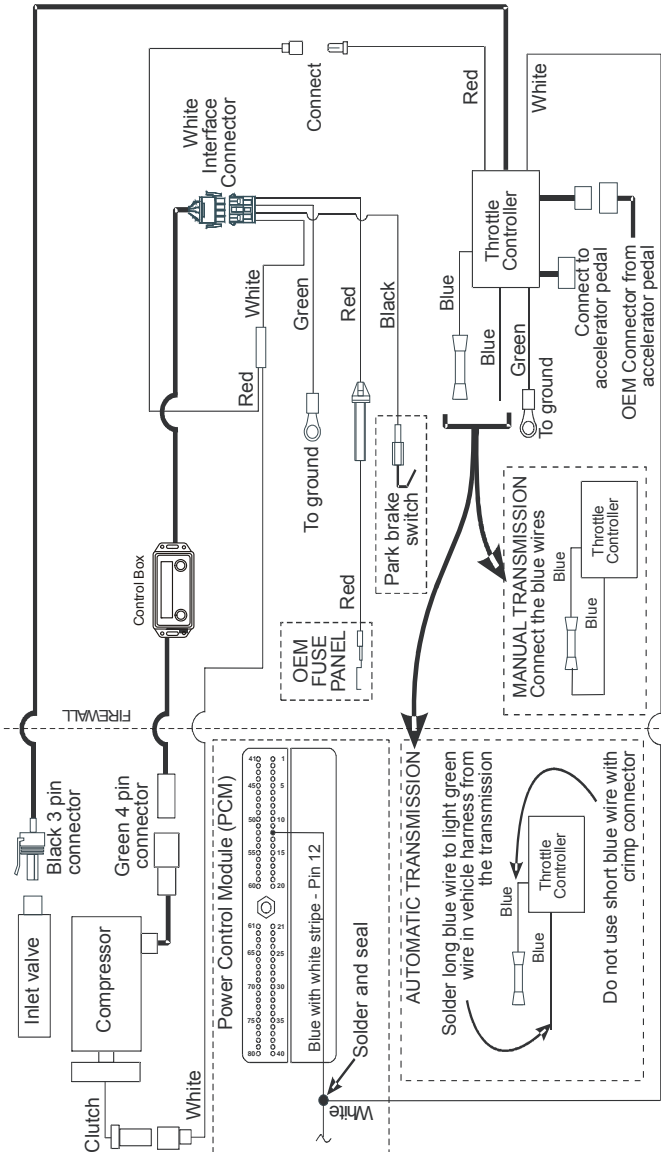
V900097 Only

- Replace the fasteners with the supplied low profile M10 x 30 mm hex head bolts with flat washers, as the high profile head on the OEM bolt will interfere with the cooler bracket.

V900107/V900108 Only

- Install the supplied cooler bracket with the angled section of the bracket pointing down and toward the passenger side of the truck.
- Replace the fasteners with the supplied low profile M10 x 30 mm hex head bolts with flat washers, as the high profile head on the OEM bolt will interfere with the cooler bracket.

Part 3: Installing the Control Components

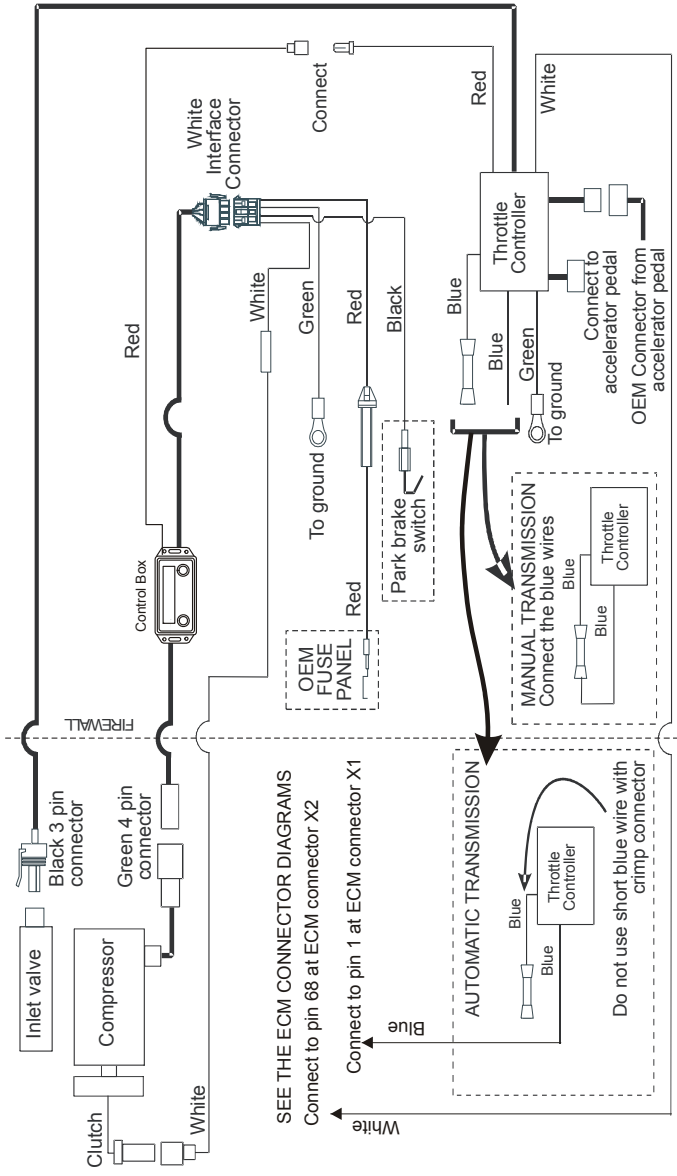


Wiring Diagram V900097

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Wiring Diagram V900107/V900108

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3.1 Installing the Control Box

- Locate a suitable location for the control box where it will be accessible but will not be subject to damage.
- Mount the control box with the wire harness coming out the bottom or the back of the unit. If the control box is mounted to the body panel, remove the plastic door trim and route the wiring along the body panel under the trim and up under the dash.
- Remove the center panel from under the steering wheel and mount the switching box under the dash using plastic ties. Make sure that it does not interfere with other parts.
- Mount the throttle control box under the dash using plastic ties. Select a location that will allow access to the adjusting screws.

3.2 Connecting the In-Cab Wiring

- Connect the interface wire harness connector to the matching connector from the control box.
- Disconnect the multi-pin connector from the accelerator pedal and plug it into to the matching connector at the throttle control box then plug the connector from the throttle control box into the accelerator pedal.
- Connect the wires with the ring connector from the throttle control box and from the interface connector to a good metal ground under the dash.
- V900097 - connect the red wire from the interface connector to the red wire from the throttle control box.
- V900107/V900108 - connect the red wire from the control box to the red wire from the throttle control.

- Route the following wires through a suitable firewall plug under the dash. If necessary, cut a slit in one of the rubber plugs and pull the wires through into the engine compartment.
 - cable with the black 3 pin connector
 - cable with the green 4 pin connector
 - white wire with the bullet connector
 - white wire from the throttle control box

- Remove the cover from the fuse panel and route the red wire with the inline fuse under the dash to the panel.

- Unplug the connector from the park brake switch. You may have to remove the cover from the large OEM electrical connector located on the firewall of the truck next to the park brake to gain access to the connection.

- Unplug the connector from the park brake switch and connect the black wire with the piggyback connector from the interface cable to the connector on the park brake switch: then connect the OEM park brake connector to the piggyback connector.

3.2.1 Manual Transmission Trucks

- Cut the long blue wire to about 6 inches, strip the end and connect it to the short blue wire using the attached crimp connector.

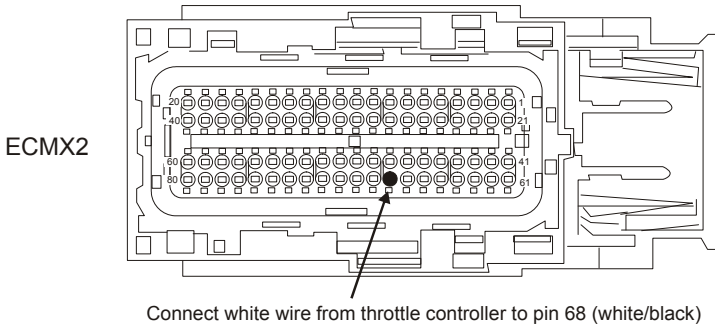
3.2.2 Automatic Transmission Trucks

- Route the long blue wire through the same location that you used for the other wires.

3.3 Connecting the Under-Hood Wiring

3.3.1 V900107/V900108 Connections

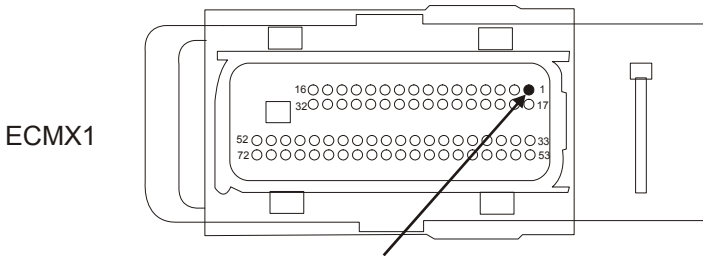
- Locate the white wire with a black stripe at pin 68 of the bottom ECM connector, ECM-X2 (Figure 3.1).



Connect white wire from throttle controller to pin 68 (white/black)

Figure 3.1

- Cut the tape on the wire loom and pull the loom back to expose the wires.
- Solder and seal the white wire from the control box to the wire at pin 68.
- Fit the loom back over the wires and replace the tape.
- Locate the orange wire with a black stripe at pin 1 of the top ECM connector, ECM-X1 (Figure 3.2).



Connect blue wire from throttle controller to pin 1 (orange/black)

Figure 3.2

- Cut the tape on the wire loom and pull the loom back to expose the wires.
- Solder and seal the long blue wire from the throttle control to the wire at pin 1.
- Fit the loom back over the wires and replace the tape.

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- Wrap the piece of split heater hose around the top wire bundle going into the ECM. Butt the heater hose up against the connector and secure with tie straps.

3.3.2 V900097 Connections

- Remove the black plastic cover from the PCM unit on the driver's side fender and carefully remove the innermost grey plastic wiring protector.



You can unclip the PCM and rotate it to make finding the wires easier.

- Locate pin 12 on the wiring connector. It should have a blue wire with a white stripe (Figure 3.3).

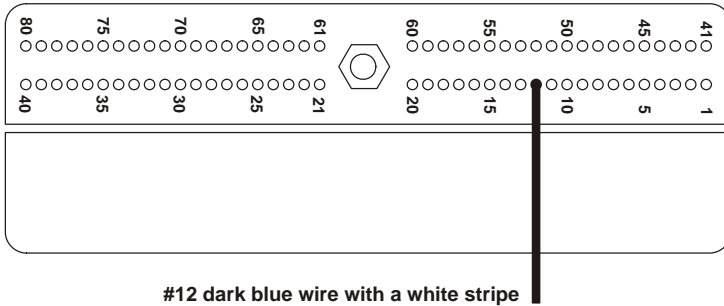


Figure 3.3

- Cut the electrical tape holding the wire loom over the harness and pull the loom back to expose the wiring.



Be careful not to damage or cut the wires.

- Cut the electrical tape on the bundle of wires to access the blue wire with the white stripe as far back from the PCM as possible.
- Cut the wire and remove about 1/2 inch of insulation from the ends. Slide a piece of shrink sleeve over one end.

- Remove about 1 inch of insulation from the throttle control box white wire. Join the wires, solder and seal with the shrink sleeve. The preferred method is shown in Figure 3.4.

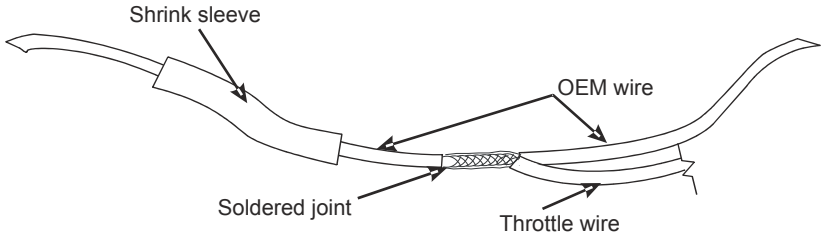


Figure 3.4

- Replace the tape over the bundle. Fit the loom back over the harness and tape it in place. Replace the plastic wiring protector and the black plastic cover.
- Cut the light green wire (marked during preparation) and remove about 1/2 inch of insulation from each end. Slide a shrink sleeve over one end of the wire.
- Remove about 1 inch of insulation from the throttle control box blue wire, join the wires, solder and seal the joint.
- Replace the tape on the bundle. Fit the loom back over the harness and tape it in place.
- Install the plastic cover on the engine.

Part 4: Installing the Tank and Hoses

4.1 Installing the Tank and Brackets



The tank will mount to the passenger side frame rail between the two body mounts (Figure 4.1).

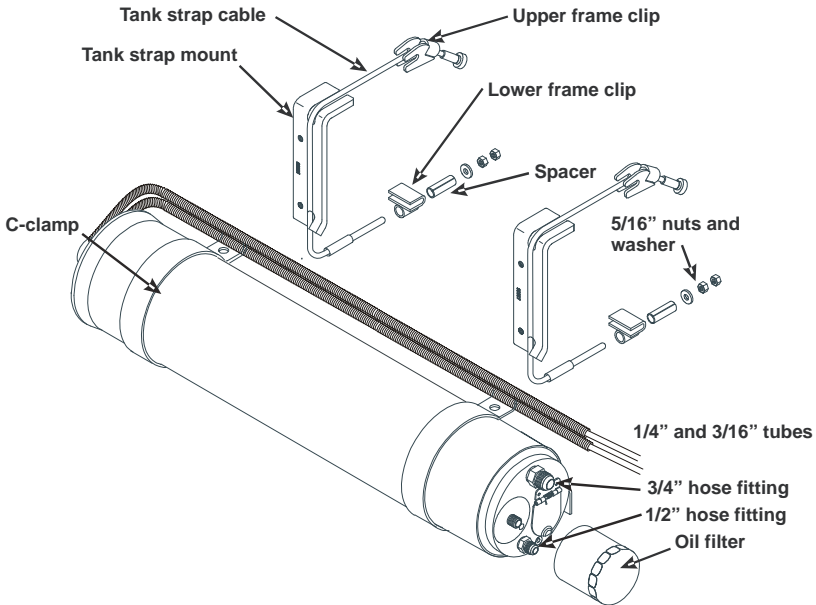


Figure 4.1

- Place the tank on a work bench with the front (oil filter end) of the tank to your left. Remove the oil filter from the front of the tank.
- Remove the two 1/4 inch clamp bolts from the C-clamps. Expand the clamps slightly and slide them over the front of the tank.
- Position the C-clamps about 6 inches from each end of the tank.

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- Place the two L-shaped tank strap mounts under the C-clamps with the right-angle ends facing you and hanging over the edge of the work bench.
- Align the holes, apply Loctite and thread 5/16 x 1/2 inch bolts with flat washers into the bottom hole on each bracket, but do not tighten.
- Install the 1/4 inch clamp bolts into the C-clamps so that the heads of the bolts face toward you and install the nuts.
- Rotate the tank so that the directional arrow on the end of the tank is parallel to the work bench and faces toward you (Figure 4.2).
- Check the distance of each C-clamp from the ends of the tank and tighten the clamp bolts so that the clamps grip the tank securely.

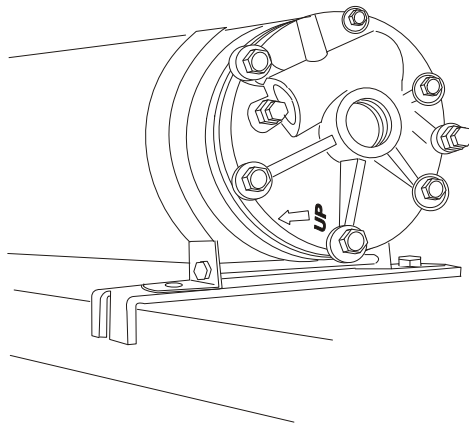


Figure 4.2

- Apply Loctite and insert 5/16 x 1/2 inch bolts through the clips and the C-clamp and thread them into the mount brackets.
- Center the bolts in the C-clamp slots and tighten them.
- Thread the 1/2 inch and 3/4 inch swivel elbows onto the matching fittings on the front of the tank, but do not tighten them.

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- Apply Loctite pipe thread sealant and install a fitting to the outlet on the tank. A 90 degree fitting is recommended. Tighten it to about the four o'clock position for testing, then reposition as required for final connections (Figure 4.3).

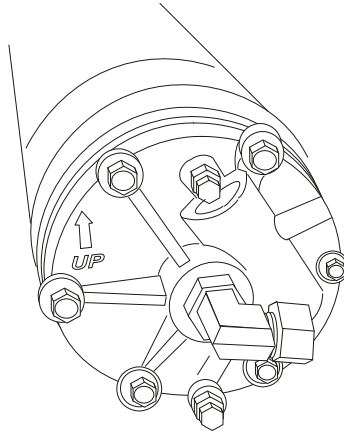


Figure 4.3

4.2 Installing the Tank Assembly

- Insert the threaded end of the cable strap through the single hole end of the bar straps.
- Place the bar straps in position on the inside of the frame, one in front of the transmission cross-member and one behind, with the cable straps over the top of the frame (Figure 4.4).
- Lift the tank assembly and support it in position so the tops of the two strap mounts fit over the top of the frame rail.



Make sure that the OEM wire harness is outside the mounts and is not pinched between the mounts and the frame.

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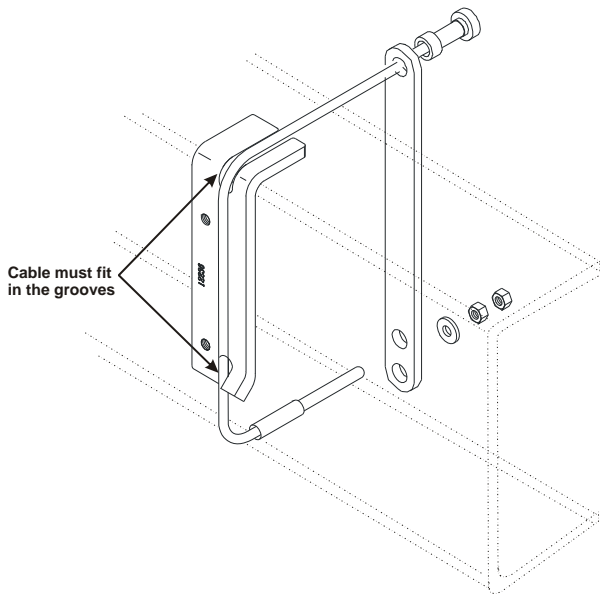


Figure 4.4

- Wrap the two tank cable straps around the tank strap mounts. Make sure that they fit in the upper and lower cut-outs of the tank strap mounts (Figure 4.4).



Make sure that the cable straps are behind the tubes and the OEM wire harness and that there are no lines or wires pinched between the cable and the mount.

- Insert the threaded end of the cable through the one of the lower holes on the tank strap flat bars. Select the appropriate holes that best match the frame of the truck.
- Place a thick 5/16 flat washer and nut on each tank cable strap and tighten just enough to hold the tank in place but loose enough to allow the tank to be positioned along the frame.
- Slide the tank rearward on the frame to provide clearance for attaching the hoses.

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All hoses, tubes, and wires that are rerouted or shifted during installation must be secure so that they do not contact excessively hot areas or sharp edges. Where possible use rubber coated P-clips. Follow the routing suggestions in this manual and cover all hoses with the supplied plastic loom.

- Route the 45 degree end of the 3/4 inch hose and the straight end of the shortest 1/2 inch hose from the engine compartment over the body mount to the tank.
- Connect the 3/4 inch hose to the matching fitting on the tank. Angle the fitting upwards to allow the hose to easily pass over the body mount and to allow the level sight-glass cover sufficient room to lift; then tighten the fitting.
- Connect the 1/2 inch hose to the matching fitting on the front of the tank and then tighten the fitting.
- Slide the tank forward, providing sufficient space for connections to the fitting on the rear of the tank and enough room to easily change the oil filter.
- Tighten the nuts on the cable straps until the tank and the bar straps are tight against the frame and the tank is secure.
- Thread a second nut on each cable clamp and lock the two nuts together using two wrenches.

Part 5: Installing the Cooler, Bracket and Compressor

5.1 Installing the Crank Pulley

- Place the VR crankshaft pulley in position over the OEM pulley. Make sure that it fits flat against the OEM pulley and install the M16 x 170mm replacement crankshaft bolt with the large spacer.
- Rotate the VR crankshaft pulley counterclockwise until the lugs on the back of the pulley are tight against the OEM pulley lugs and tighten the crankshaft pulley bolt sufficiently to hold the pulley in position



Do not use an impact tool to tighten the pulley bolt.

- Remove the starter motor and install the OEM flywheel locking tool.
- Pre-torque the crankshaft bolt to 37 ft-lbs (50 N.m).
- Place the degree marking gauge (Figure 5.1) on the VR pulley and mark the pulley (using a marker pen) at both points to indicate an angle of 140 degrees. Torque the crankshaft bolt to the 140 degree mark.
- Remove the OEM flywheel locking tool and install the starter motor.

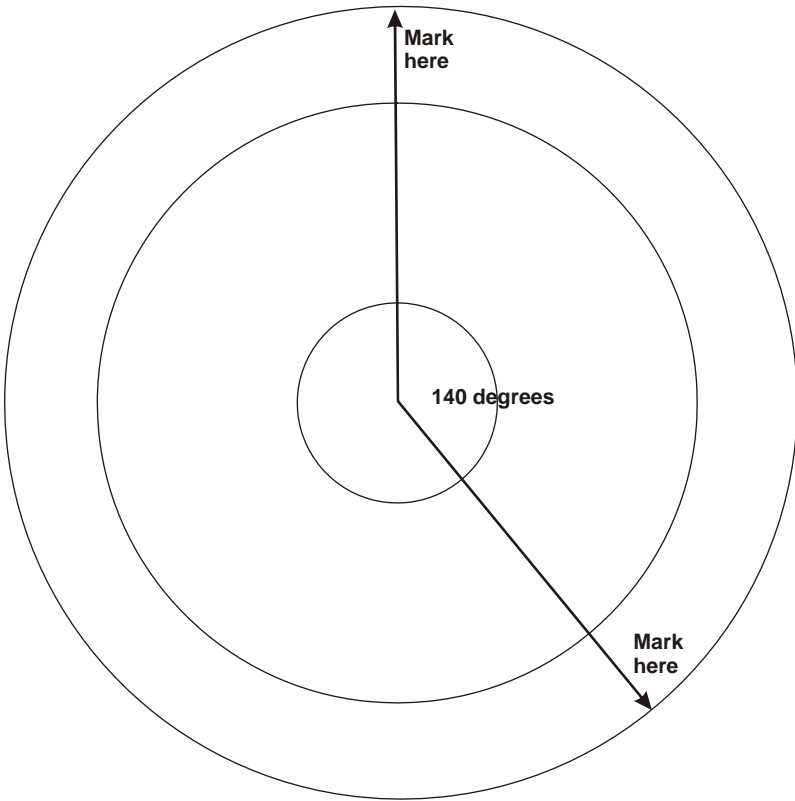


Figure 5.1

5.2 Installing the Oil Cooler



The oil cooler (Figure 5.2) is installed on the passenger side of the truck, just below the corner of the radiator, with the oil fittings facing to the passenger side.

- If you did not remove a bolt from the bottom of the frame, insert the supplied M12 x 30 mm hex head bolt through the hole in the frame from the inside of the frame so that the threads point downward through the hole.
- Remove the clip holding the wire harness to the radiator frame as it will interfere with the cooler positioning. Move the harness out of the way.

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- Place the cooler in position on the frame. Bend the steel brake line that runs over the chassis member inward until the cooler sits flat against the outside of the frame rail.

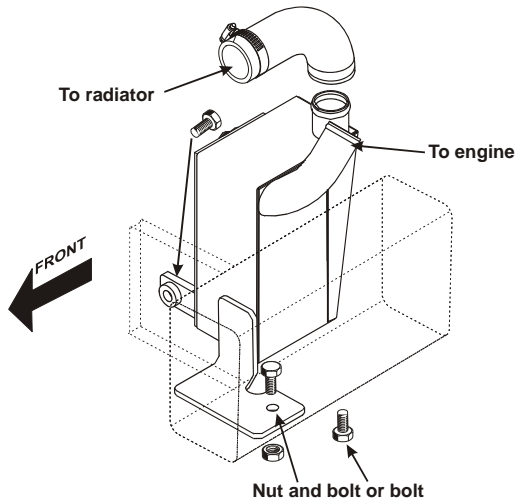


Figure 5.2

5.2.1 V900097 Only

- Install the M10 x 40 mm hex head bolt with flat washer into the outer bumper support bracket mounting hole. Use the provided spacer between the cooler and the support bracket.
- Install the M12 x 30 mm hex head bolt through the bottom mount hole and thread it into the frame or fit the bottom mount hole over the bolt that was inserted into the frame and thread on a nut.

5.2.2 V900107/V900108 Only

- Install the M10 x 40 mm hex head bolt with flat washer into the outer bumper support bracket mounting hole.
- Install the M10 x 40 mm hex head bolt through the outer cooler mount and bracket on the fender support and fasten it in place with a washer and M10 nut.

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- Install the M12 x 30 mm hex head bolt through the bottom mount hole and thread it into the frame or fit the bottom mount hole over the bolt that was inserted into the frame and thread on a nut.

5.2.3 All Trucks

- Tighten the bolts. If you use the bolt and nut combination, use an impact to tighten the nut as you cannot reach the head of the bolt with a wrench.
- Route the OEM wire harness so that it does not touch the cooler and fasten it securely out of the way.
- Remove the plug and install the hose from the cooler onto the lower radiator fitting. Loosen the clamp on the cooler end, position both clamps properly and tighten them securely. On some trucks you may have to cut the hose to length at the radiator end to ensure a good fit.
- Check the fit of the OEM lower radiator hose before making any cuts. If necessary, cut 1-3/4 inches off of the radiator end of the OEM lower radiator hose and 1 inch off of the engine end. Install the hose and secure it with hose clamps.
- Connect the 90 degree end of the 1/2 inch hose from the tank to the top fitting on the cooler.
- Connect the 90 degree end of the remaining 1/2 hose to the bottom fitting on the cooler.
- Route the 1/2 inch hose from the bottom of the cooler over the frame and under the front of the engine to the driver's side of the engine compartment.
- Fasten both 1/2 inch hoses using tie straps so that they do not contact any hot or moving parts. The hose running under the engine can be tied to the brackets holding the OEM wiring harness.

5.2.4 V900107/V900108 Only

- Install the modified splash guard that secures the passenger side inner fender. Make sure that there is sufficient clearance for the cooler hoses and perform additional modifications to the splash guard if necessary.

5.3 Installing the Main Bracket and Compressor

- Remove the idlers and the complete tensioner assembly from the main bracket (Figure 5.3).
- Place the main bracket on the front of the driver side cylinder head and install three of the OEM M10 bolts from the alternator casting into the three upper holes on the main bracket.
- Push the bracket back against the cylinder head, apply Loctite and insert the supplied M10 x 30 mm hex head bolt with washer into the lower hole in the rear face of the main bracket.
- Make sure that the bracket sits flat against the engine. If the bracket does not sit flat, remove it and correct the problem.
- Torque all bolts to specifications.
- Install the power steering pump on the main bracket using the supplied replacement bolts. Apply Loctite and torque to specifications.
- Align the marks and Install the power steering pump pulley.
- Apply Loctite, install the OEM idler and the three grooved idlers on the bracket and torque to specifications.
- Install the tensioner assembly and torque to specifications.

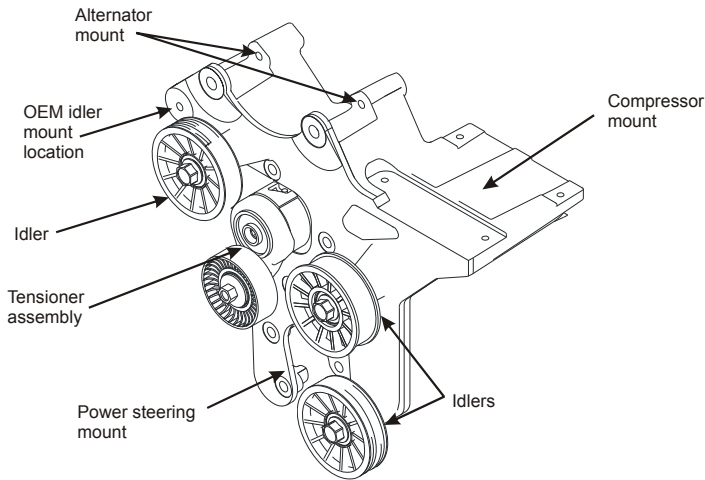


Figure 5.3

- Install the red battery cable splitter box to the back of the VR compressor bracket (Figure 5.6). The two OEM M6 bolts attach through the two top holes on the VMAC supplied bracket and the two supplied M6 x 18 mm bolts, nuts and washers attach the VMAC bracket to the OEM splitter box mount bracket.
- Remove the inlet valve from the compressor and immediately cover the opening to prevent debris from entering the compressor
- Place the VR compressor onto the mounting bracket, install four M8 x 110 socket head bolts with Loctite and torque to specifications.
- Re-install the compressor inlet valve.



If the bolts used to attach the inlet valve to the air end are installed incorrectly major damage to the air end can occur.

It must be noted that most systems use two different length bolts in the inlet valves. The longer bolts go in the two holes closest to the air filter and the two shorter bolts go in the holes furthest away from the air filter (figure 5.4).

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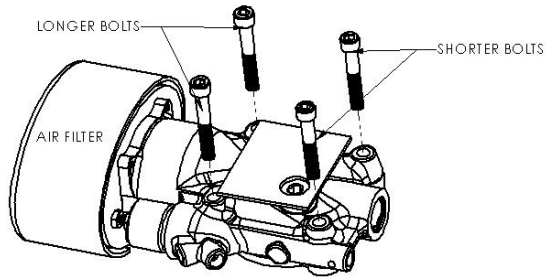


Figure 5.4



***Never use an impact wrench to install inlet bolts.
The torque spec for inlet bolts is 19 ft lbs.***

- Install the OEM belt, then the VR belt (Figure 5.5). Visually check belt alignment to make sure that it is correct.

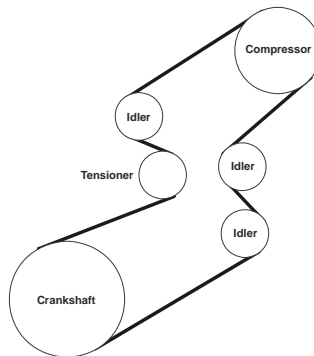


Figure 5.5

- Install the alternator on the main bracket using the OEM bolts. The spacers will pull into position as you torque the retaining bolts to specifications.

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5.3.1 V900097 Only

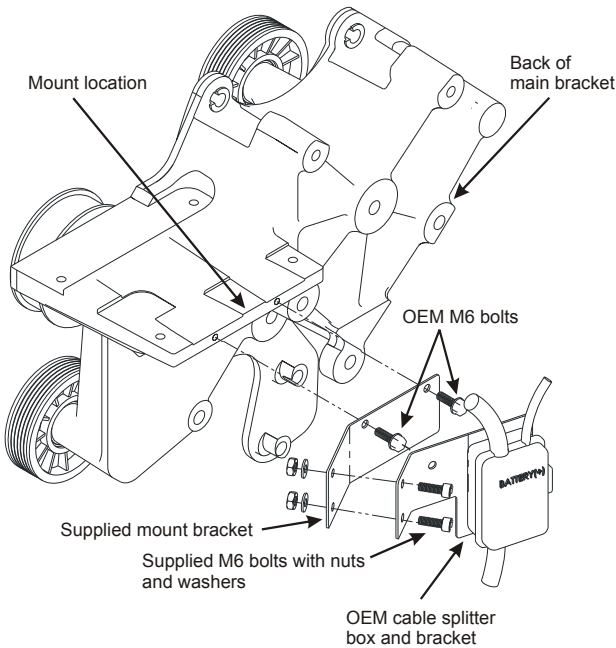


Figure 5.6

5.3.2 V900107/V900108 Only

- Loosen the power steering hose under the bottom idler of the main bracket. Rotate the hose to clear the idler. Tighten the fitting and bend the metal line to ensure at least 1/2 inch clearance between the lower idler and the power steering hose.

5.4 Connecting the Hoses



All hoses, tubes, and wires that are rerouted or shifted during installation must be secure so that they do not contact excessively hot areas or sharp edges. Where possible use rubber coated P-clips. Follow the routing suggestions in this manual and cover all hoses with the supplied plastic loom.

- Insert the 3/16 and 1/4 inch tubes into the fittings on the back of the tank and cover them with high temperature loom. Route them with the 3/4 inch hose up from the cab mount, across the firewall and over to the compressor.

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- Connect the 3/16 and 1/4 inch hoses to the matching fittings on the inlet control valve.
- Connect the 1/2 inch hose from the cooler to the matching fitting on the compressor. Route the hose behind the power steering pump.
- Connect the 3/4 inch hose to the matching fitting on the back of the compressor.
- Tighten all fittings.
- Remove the cardboard protector from the filter mount base on the tank.
- Apply a thin coating of compressor oil to the oil filter gasket and install the filter on the tank. Tighten the filter an additional 1/2 turn after the gasket contacts the base.

5.5 Completing the Installation

5.5.1 V900097 Only

- Install the battery mounting platform. One of the battery mounting screws should go through the rear hole in the OEM PCM bracket and the VMAC PCM locating bracket. The forward hole in the PCM is not used.
- Place the small end of the triangular upper PCM mounting bracket under back mounting hole of the PCM. Insert an OEM bolt through the PCM and the bracket and thread it into the rear-most mounting hole on the battery support rail (Figure 5.7).
- Insert a supplied bolt through the PCM mounting hole and the front outer hole of the triangular bracket and install a washer and nut.
- Install an OEM bolt through the remaining hole on the triangular bracket and into the original front mounting location for the PCM. Tighten all fasteners.

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- Mount the lower PCM mounting location to the supplied flat plate bracket and install the OEM bolt. Now mount the supplied flat plate bracket to the OEM support location using the supplied M6 bolt, washer, and nut.
- Use the 6" split hose to protect the PCM wiring.
- Mount the OEM bracket onto the supplied flat plate bracket. Align the two lower holes and install an M6 bolt, washer and nut.
- Align the upper holes and fasten the brackets to the hole in the rear of the compressor base with an OEM bolt.
- Install the fender liner using the original plastic fasteners to secure it in place.
- Install the air intake tube and resonator box.

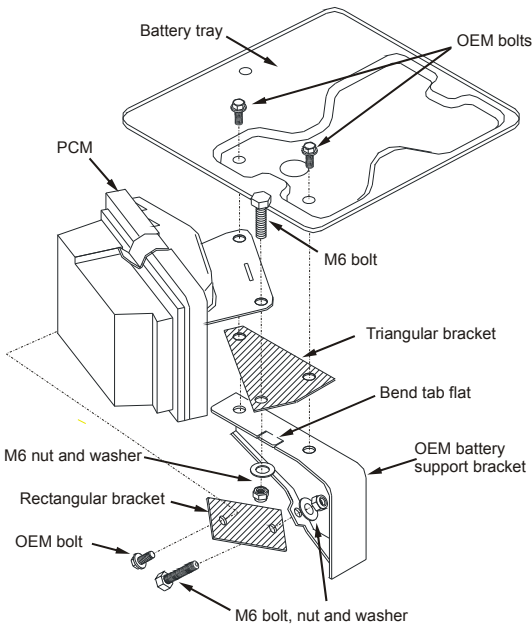


Figure 5.7

5.5.2 All Trucks

- Install the lower fan shroud.

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- Install the fan spacer, thread on the fan and tighten the fitting.
- Install the upper fan shroud.
- Connect the upper radiator hose to the radiator and clip it onto the fan shroud.
- Check all fasteners, clamps, fittings and retainers to make sure that they are tight and secure all OEM wire harnesses.
- Fill the cooling system with the recommended coolant.
- Connect the white wire with the bullet connector, the green 4 pin connector and the black 3 pin connector to the matching connections at the compressor.
- Install the battery and retainer.

5.6 Adding Oil to the System



You must use the VMAC supplied and approved compressor oil in this system. Failure to use this special oil will result in damage to the compressor and will void your warranty.

- Remove the fill plug from the air inlet control valve and pour about 3 US quarts (3 litres) of the supplied oil into the oil fill hole on the inlet control valve using a funnel.
- Turn the compressor clutch clockwise with a ratchet and a 1/2 inch socket using the hex head bolt at the centre of the compressor clutch during the fill process.
- Allow at least 5 minutes for the oil to drain into the tank, then check the level at the sight glass at the front of the tank. Continue adding oil until the level is correct.
- Install the fill plug in the inlet control valve and tighten it securely.



Do not overfill the system.

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Part 6: Finishing the Installation

6.1 Connecting to Switched Power

- Route the red wire from the interface connector (with the inline fuse) to the fuse panel.
- Connect the truck batteries.
- Locate a fuse in the fuse panel dash that provides power when the ignition switch is in the “ON” position. Remove the selected fuse from the panel and connect the fuse tap to one side. Plug the fuse back into the empty socket using needle-nose pliers to make sure that it seats properly.



Make sure that the fuse is inserted with the tap on the battery power side (hot), not the fused side.

6.2 Securing the Wiring

- Under the hood, group all the wires and harnesses from the compressor and secure them together with electrical tape, then protect them from damage with plastic loom.
- Cover the white wire and the blue wire with loom and make sure that they are secured.
- Pull all wire and harnesses into the cab of the truck so that there are no loose loops under the hood.
- Neatly bundle all the wiring in the cab, secure the bundles with nylon ties or electrical tape and fasten them up under the dash, away from the steering column, brake pedal, accelerator pedal and park brake mechanism. Secure them with nylon ties.
- Replace the dash panel and the fuse panel cover.

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6.3 Safety Test

- Place the automatic transmission in Park or manual transmission in neutral and apply the park brake.
- Turn the ignition key “ON” but do not start the engine.
- Check the control box; there should be a number displayed in the hour-meter. If not, there is no power to the control box.
- Press the “OFF” button. The compressor clutch should disengage.
- Release the park brake. The green light should go out and the compressor clutch should disengage. Apply the park brake again; the light should come on and the clutch should engage.
- Turn the ignition key “OFF”.



If the truck fails the test, check the wiring to make sure that all the connections are correct and secure. If you require additional assistance, contact your local VMAC dealer. Call 1-800-738-8622 or 250-740-3200.

6.4 Before Starting the Engine Checklist

Make sure that the following have been completed:

- Check the engine coolant level.
- Check the compressor oil level.
- Do a final inspection to make sure that everything has been completed and tightened.
- Perform a final belt alignment check.
- Check all wiring for security and protection.

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6.5 After Starting the Engine Checklist



Place the truck in a safe operating position and block the wheels. Ensure that there are no people around the truck before beginning the test.

Make sure that the following have been completed:

- Install a test fixture or air tool to the tank outlet. Close the ball valve closed if you are using the test tool.
- Start the engine and allow it to reach operating temperature. Push the “ON” button on the control box.
- The green light should illuminate, the clutch should engage and the engine should rev up to 1800-2200 rpm and then idle down to 900-1000 rpm.
- Release the park brake. The green light should flash, “PARK BRAKE” will be displayed and the clutch will disengage. Apply the park brake. Wait for the twenty second internal timer to reset, then press the “ON” button.
- The green light should illuminate, the clutch should engage, and the engine should rev up to 1800-2200 rpm and then idle down to 900-1000 rpm.
- Watch the underhood operation to make sure that belts rotate properly and nothing is rubbing or contacting hot parts.
- Check all components once the engine is turned off and the system has cooled
- Check the coolant after the engine reaches operating temperature.
- Check the compressor oil level after the engine has been shut down and the oil level has had time to stabilize.

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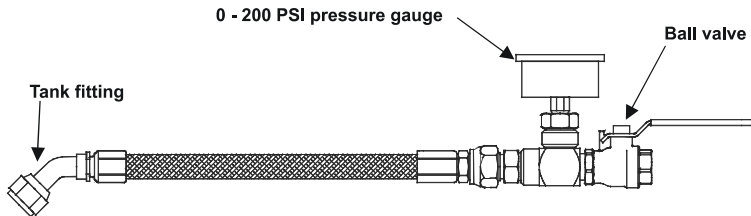
6.5.1 Transmission Test

- With the compressor operating and the engine at 900 rpm, depress the brake pedal and shift from Park to Reverse. Engine speed should drop to base idle. Shift to Park. Repeat this test for all gear selections.
- Push off button on the control box. The engine should return to base idle, the compressor should be off and the green light should be off on the control box.
- Operate the system with an air tool for at least thirty minutes (1 hour preferred). Road test the truck for approximately 14 miles (20km)

6.6 Setup, Performance Testing and Adjustments

This system has been adjusted at the factory for general operation. If your tests indicate that adjustment is necessary, refer to the owner's manual for specific instructions on how to adjust the system.

You can test the system operation using the tools that will be operated by the system or you can test operations using an orifice in the outlet to simulate tool use (Figure 6.1).



System Testing and Adjustment Tool - A700052

Figure 6.1

1. Install the test tool in the tank outlet fitting.
2. Make sure that the ball valve is closed.
3. Place the manual transmission in neutral or the automatic transmission in park and fully apply the park brake.
4. Allow the truck to run until the engine is at operating temperature.

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5. Operate the air compressor system until the oil is warm.
6. Observe the pressure gauge. Pressure should be approximately 150 psi.
7. Open the ball valve on the test tool and observe the engine tachometer. Engine speed should increase to about 1,800 to 2,200 RPM .
8. Close the air valve slowly to allow the system pressure to rise.
9. Once the system pressure is at maximum, slowly open the ball valve on the test tool until the pressure on the gauge begins to drop. Engine speed should start to ramp-up when air pressure drops to approximately 140 PSI.

6.7 Auxiliary Air Receiver



If you intend to use an auxiliary air receiver with this system you must observe the following installation procedure to prevent damage to the system.

The line from the VMAC tank to the auxiliary air receiver must have a one-way check valve installed (part #3600078) to prevent blow back from the auxiliary tank to stop moisture from entering the VMAC tank (Figure 6.2).

The line to the auxiliary tank must not be installed in the bottom of the tank, but must be installed as high as possible to prevent water from entering the line.

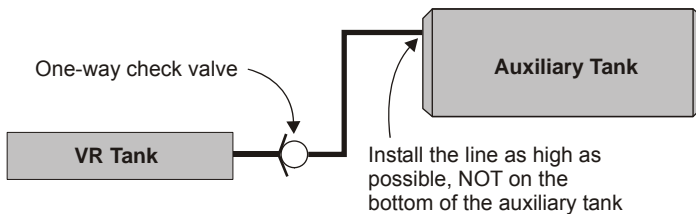
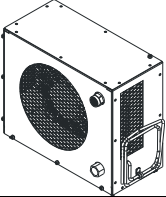
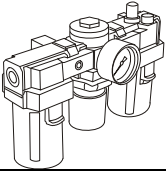
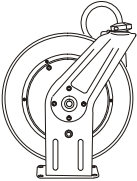
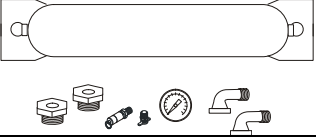
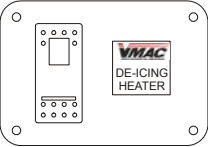
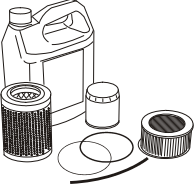


Figure 6.2

Accessory Products from VMAC

The following accessory products for your VR compressor system are available from VMAC. For more information or to order these products, call toll free 1-888-241-2289 or local 250-740-3200.

	<p>Eliminator Aftercooler Part Number A800070</p> <p>Removes up to 80% of moisture from compressed air. Quick installation, automatic drain and compact design</p>
	<p>Filter Regulator Lubricator Part Number A700151</p> <p>Removes lubricants, water and dirt from the air stream. Adds atomized tool oil to lubricate tools. Reduces pressure for longer tool life.</p>
	<p>Hose Reel Part Number A700007</p> <p>Secure, compact, retractable hose storage in a sturdy reel.</p>
	<p>Air Receiver Tank Part Number A300010</p> <p>Thirty-five gallon capacity in a compact tank, complete with fittings and a gauge.</p>
	<p>De-icer Kit Part Number A700031</p> <p>Insulated rope heater prevents freezing of lines and regulator.</p>
	<p>Service Kits VR140 200 hour Part Number A700059 VR140 400 hour Part Number A700060 VR70 200 hour Part Number A700019 VR70 400 hour Part Number A700020</p> <p>Using OEM service products will extend the life of your system. Includes oil, filters, seals and O-rings. 200 hour and 400 hour service interval kits are available</p>

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